

Notice of Allowability

Application No.

10/799,160

Examiner

Keith J. Godfrey

Applicant(s)

HA ET AL.

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1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment After Final.
2. ☒ The allowed claim(s) is/are 1, 3-43.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20070823.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

An examiner's amendment of the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such as amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kevin King on 23 August 2007.

The application has been amended as follows:

In the Claims:

Claim 43 has been replaced by the following claim:

43. (Currnetly Amended) A method for producing a shrunken replica of a bicontinuous structure, the method comprising:

- (a) providing a first bicontinuous structure which comprises at least a first solid phase and a second phase comprising gas-filled or evacuated interconnected pores;
- (b) shrinking the first solid phase by a pyrolysis process;
- (c) infiltrating the pores with a first fluid material;
- (d) immobilizing the first fluid material to form a second bicontinuous structure which comprises the shrunken first solid phase and a third phase consisting of the immobilized first fluid material; and
- (e) removing the first solid phase, to yield a shrunken inverse replica which comprises the third phase and a fourth phase consisting of gas-filled or evacuated

interconnected pores.

(f) shrinking the third phase by a pyrolysis process;

(g) infiltrating the pores of the fourth phase with a second fluid material;

(h) immobilizing the second fluid material to form a third bicontinuous structure which comprises the shrunken third phase and a fifth phase consisting of the immobilized second fluid material; and

(i) removing the shrunken third phase, to yield a shrunken direct replica which comprises the fifth phase and a sixth phase consisting of gas-filled or evacuated interconnected pores.

Claim 44 has been canceled.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: the closest prior art Zakhidov et al. (US 6261469), hereinafter "Zakhidov" teaches infiltrating an exact inverse replica of material B with a material C, and then removing the material B to create a *direct* replica of material C (col. 7, lines 14-21). However Zakhidov teaches away from a process that includes making a shrunken inverse replica, *and* infiltrating that shrunken inverse replica with a fluid material, and then immobilizing that fluid material. Zakhidov which discloses contraction (col. 17, lines 40-67) results in glassy carbon which is totally unsuitable for repeating/cycling. The final pyrolysis step results in essentially a pure carbon material that, even if one were to infiltrate pores therein with

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a resin or other material, would not be removable from the resin without incinerating the infiltrated material. For these reasons, specifically that of multiple repeating/cycling of shrinking and infiltrating to produce inverse and direct replicas respectively gives novelty to the instant invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith J. Godfrey whose telephone number is 571-272-6391. The examiner can normally be reached on 8:00-5:00 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

kjg


CHRISTINA JOHNSON
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